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| 10/583,169  | 05/10/2007  | Xavier Couillens     | 1022702-000323      | 5100             |
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| EXAMINER<br>KOLLAS, ALEXANDER C   |             |                      |                     |                  |
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| 1725  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/583,169

**Applicant(s)**

COUILLENS ET AL.

**Examiner**

ALEXANDER C. KOLLIAS

**Art Unit**

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15 and 20-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15 and 20-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-040)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/7/2010 has been entered.
2. It is noted that claims 15 and 20-32 are pending and claims 1-14 and 16-19 are cancelled. Further, in light of the amendment to claim 15, limiting the combined amount of compounds F1-F3 to 14-35 wt %, the 35 U.S.C. 112 first paragraph rejection set forth in Paragraphs 5-6 of the Final Action mailed on 7/7/2010 is hereby withdrawn. Finally, although claim 15 has been amended to recite that the total amount of F1-F3 is 14-35 wt %, the prior art references of record, Schlosser and Yakabe et al remain relevant against the present claims.

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 15, 20-26, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) in view of Yakabe et al (US 2002/0151625).

Regarding claims 15, 21-22, and 32, Schlosser et al teaches a fire-retardant composition comprising a polyamides and copolyamides such as nylon-6, nylon-4, and nylon-6,6 or polyester such as PBT or PET (Column 5, Lines 47-64 and Column 6, Lines 1-8). Regarding the fire-retardants, the reference discloses phosphinates given by Formula (I) which is identical to Formula (I) (disclosed a component A) recited in claim 1 as F1 (Abstract, Column 1, Lines 50-59). The reference discloses that R<sup>1</sup> and R<sup>2</sup> of disclosed Formula (I) are C<sub>1</sub>-C<sub>6</sub> alkyl and can be

the same of different (Column 1, Lines 65-67). The reference discloses that the phosphinate salt is added to the composition in the amount from 3 to 20 wt % (Column 3 Lines 22-25).

Furthermore, it is noted that the amount disclosed by the reference is within the recited amount from 1 to 15 wt % of F1 recited in claim 15 (Column 3, Lines 22-25).

The reference discloses that the composition comprises a second fire retardant such as condensation products of melamine and/or reaction products of melamine with phosphoric acid such as melamine polyphosphate and melem polyphosphate (compound F2) (disclosed as component B Column 2, Lines 7-12 and Column 2 Lines 57-60). The disclosed melamine and melem polyphosphate compound disclosed by the reference clearly encompass the compounds recited in claim 21. It is noted that disclosed component B can be either melamine reaction products or melamine phosphate or a combination of the two. It is noted that disclosed compound B can be a mixture of melamine reaction products and melamine phosphate which clearly compasses compounds F2 and F3 recited in the instant claims. Furthermore, the reference discloses that component B comprises 3 to 20 wt % (Column 3 Lines 22-25).

It is noted that components A and B comprise 6 to 40 wt %, clearly meeting the claim limitation recited in claims 15 and 32 that the composition comprises at least 13 wt % and 15 wt % of F1 and F2. Furthermore, as the reference discloses that components A (F1) and B (a mixture of F2 and F3) may independently comprise 3 to 20 wt % of the composition, the total amount of components A and B (and therefore compounds F1-F3) is 6 to 40 wt %, meeting the claim limitation that F1-F3 comprises 1 to 50 wt % of the composition.

Schlosser teaches all the claim limitations as set forth above. While the reference discloses the use of mixtures of condensation products of melamine and reaction products of

melamine with phosphoric acid, the reference does not disclose amounts of melamine reaction products.

Yakabe et al discloses fire retardants for polyamides comprising melamine polyphosphates utilized in an amount from 10 to 38 wt % of the composition (Abstract, Page 2 [0011], Page 3 [0025]-[0026]). The reference discloses that these compounds offer very high flame-retardation effects when utilized in combination with inorganic reinforcing materials such as glass as well as heat resistance (Page 3 [0026], [0029]). Further it is noted that based on the amount of the compounds F1 (3 to 20 wt %) and F3 (3 to 20 wt %) disclosed by Schlosser and the amounts of melamine polyphosphate (F2) disclosed by Yakabe et al ( 10 to 38 wt %), the total amount of F1-F3 is determined to be 3 to 78 wt % of the composition, which overlap the amount of 1 to 50 wt % of F1-F3 recited in claim 15. It is noted that the polyphosphate compounds disclosed by the reference meets the limitations in claim 21 drawn to compounds such as melamine polyphosphate.

With respect to the limitation drawn the amounts of the compounds F1, F2, and F3 comprising 14 to 35 wt % of the composition, it is noted that the combined disclosures of Schlosser and Yakabe et al disclose that the total amount of F1-F3 is 6 to 40 wt % of the polyamide composition and which overlaps the range of 14 to 35 wt. % recited in the present claims.

Given that Schlosser et al discloses a composition comprising polymers, phosphinate salts, melamine condensation products and reaction products of melamine and phosphoric acid, as well as inorganic fillers and given that the reference does not explicitly prohibit other ingredients, in light of the particular advantages provided by the use and control of the melamine

polyphosphate as taught by Yakabe et al, it would therefore have been obvious to one of ordinary skill in the art to include such compounds in the composition disclosed by Schlosser et al with a reasonable expectation of success.

Regarding claim 20, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Although Schlosser does not explicitly disclose the phosphinic acid compounds recited in claim 20, disclosed Formula (I) comprising groups R1 and R2 which may be identical or different and are C<sub>1-6</sub> alkyl clearly encompasses the recited compounds in the present claim.

Regarding claims 23-25, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. As discussed above, Schlosser discloses a composition where polymer is a polyamides or copolyamide such as nylon-6, nylon-4, and nylon-6,6 or polyester such as PBT or PET meeting the limitations recited (Column 5, Lines 47-64 and column 6, Lines 1-8).

Regarding claims 26 and 31, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser discloses that the composition comprises fillers such as glass fibers as well as articles of manufacture such as moldings, films, filaments and fibers, meeting the claim limitations recited in claim 26.

Regarding claim 30, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser discloses a process of blending the thermoplastic polymers with the flamed retardant system (Column 7, Lines 5-19).

7. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) and Yakabe et al (US 2002/0151625) as applied to claims 15, 20-26, and 28-32 above, and in view of Lewis (see attached pages of Hawley's Condensed Chemical Dictionary) and Pitts et al (US 3,865,760).

The discussion with respect to Schlosser et al and Yakabe et al as set forth in Paragraph 6 above is incorporated here by reference.

Regarding claims 28-29, the combined disclosures of Schlosser et al and Yakabe teach all the claim limitations as set forth above. Additionally, Schlosser discloses that the compositions may comprise compounds such as chalk (Column 7, Lines 13-19). As evidenced by Lewis chalk is commonly known in the art as calcium carbonate which meets the limitations drawn to alkaline earth metal carbonate recited in the claim 29. While the references do not disclose that calcium carbonate is a flame retardant synergist, it is the Examiner's position that calcium carbonate will inherently function as a synergist. Evidence to support the Examiner's position is found in Col. 1, Lines of 57-61 of Pitts which discloses that calcium carbonate is a flame retardant. Thus, given that the Schlosser discloses a compositions comprising the flame retardants discussed above and given the evidence in Pitts, it is clear that chalk as disclosed in Schlosser will function as a flame retardant synergist as presently claimed.



8. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schlosser et al (US 6,255,371) and Yakabe et al (US 2002/0151625)) as applied to claims 15, 20-26, and 28-32 above, and in view of Hanabusa et al (US 6,433,045).

The discussion with respect to Schlosser and Yakabe et al as set forth in Paragraph 6 above is incorporated here by reference

Regarding claim 27, the combined disclosures of Schlosser and Yakabe et al teach all the claim limitations as set forth above. Additionally, Schlosser teaches that minerals such as chalk may be added to the fire retardant molding composition (Column 7, Lines 20-23). However, the reference does not teach a composition, wherein the reinforcing fillers are wollastonite, kaolin, clay, silica and mica.

Hanabusa et al teaches a fire retardant composition comprising inorganic fillers are wollastonite, kaolin, clay, silica and mica (Column 5, Lines 40-49). Furthermore, the reference teaches that inorganic fillers can be used either singly or in combination of two or more of them. The fibrous filler, particularly the combination of a glass fiber with a powdery and/or platy filler (such as mica, See Column 5, Lines 48-49), is desirable for obtaining excellent mechanical strength.

Given that both Schlosser et al and Hanabusa et al are drawn to flame retardant thermoplastic compositions comprising phosphoric acid salts (Formula F1 of instant application), melamine compounds, and inorganic fillers and fibers, and, given that Schlosser et al does not explicitly prohibit other ingredients, in light of the particular advantages provided by the use and

control of the amount of inorganic fillers as taught by Hanabusa et al, it would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to include such inorganic fillers in the flame retardant thermoplastic composition as taught by Schlosser with a reasonable expectation of success.

### **Response to Arguments**

9. Applicant's arguments filed 12/7/2010 have been fully considered but they are not persuasive.

10. Applicants' arguments regarding the prior art reference Schlosser and unexpected results Glow Wire Ignition Test (GWIT) results of compositions comprising F1-F2 are not found to be convincing for the following reasons:

11. With respect to Schlosser, Applicants argue that none of the examples of Schlosser et al employ the compound F3. However, while the use of F3 is not exemplified by the reference, it is noted significant to note that the reference does explicitly disclose the use of melamine condensate derivatives, melam, melon, as the preferred melamine condensation derivative which is utilized in amounts for 3 to 20 wt %, see for example Col. 2 Lines 50-52 and Col. 3 Lines 22-25 – disclosed as Component B. Furthermore, it should be noted that the reference does explicitly disclose the use of melamine polyphosphate compound in combination with melamine condensation derivative, see Col. 2 Lines 6-10. Furthermore, while the reference does not disclose amounts of F2 to be utilized in the disclosed compositions, as discussed

above, the reference does explicitly disclose/suggest combinations of melamine condensation derivatives with reaction products between phosphoric acid and melamine. To this end, it is noted that the amount of F2 and benefits thereof in polymeric compositions were taught by Yakabe et al, i.e. the use of melamine polyphosphates in combination with inorganic reinforcing material, i.e. glass fiber, yields high flame-retardation heat effects.

12. With respect to Applicants' arguments drawn to the Glow Wire Ignition Test (GWIT) results of the presently claimed compositions is not found convincing for the follow reasons:

Table 1 of the present Specification discloses Inventive Compositions 1-4 which comprise the compounds F1 (Formula I with R1 and R2 are ethyl and M is aluminum), F2 (melamine polyphosphate) and F3 (melem); Comparative Composition A comprises the compounds F1 and F2. Of the presented embodiments, the only proper side by side comparison is Comparative A compared to Inventive 1, i.e. both contain identical amounts of compounds F1 and F2. However, it is noted Inventive Example 1 comprises 5 wt % of F3 while the present claims recite an amount of F3 from 1 to 10 wt % of a melamine condensation derivative and the closest prior art of record discloses an amount of F3 melamine condensation derivatives, i.e., melem in the amounts from 3 to 20 wt %. Thus, Inventive Example 1 is not commensurate in scope with the scope of the closest prior art and the present claims.

The present embodiments are drawn to polyamine compositions comprising a specific polymer, i.e. polyamide, and the specific compounds F1- F3 discussed above. Given that the present claims are drawn to any polymer, and relatively generic reaction product of phosphoric acid and melamine or a reaction product of phosphoric acid and a melamine condensation

derivative, and F3 is a melamine condensation derivative, the Inventive Embodiments are not commensurate in scope with the scope of the present claims.

With respect to Applicants' arguments regarding unexpected results of Inventive Example 2 and Comparative Example A with respect to the GWIT, it is noted that the comparison is not a proper side by side the different amount of compound F1 and F2 in both embodiments, i.e.

(a) Inventive Example 2 comprises 12.4 wt % F1 as compared to 11.5 wt % utilized in Comparative Example A

(b) Inventive Example 2 comprises 6.5 wt % F2 as compared to 6 wt % F2 utilized in Comparative Example A.

Given the different amounts of F1 and F2 utilized in the Inventive Example 2 and Comparative A, it is the Examiner's position that the comparison of these embodiments it is not a proper side by side comparison.

Further, it is noted that the present claims require that F1 is from 5 to 15 wt %, F2 is from 2 to 10 wt %, and F3 is from 1 to 10 wt %, and the total of F1+F2+F3 is from 8 to 35 wt %. However, the inventive embodiments comprises 20-22.5 wt % of F1+F2+F3, F1 is 10-12 wt %, F2 is from 5 to 6.5 wt % and F3 is from 1 to 7 wt %. As set forth in MPEP 716.02(d), whether unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, "objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support". In other words, the showing of unexpected results must be reviewed to see if the results occurred over the entire claimed range, *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980). Applicants have not provided data to show that the unexpected results do in fact occur over the entire claimed range of F1, F2, and F3.

### **Conclusion**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER C. KOLLIAS whose telephone number is (571)-270-3869. The examiner can normally be reached on Monday-Friday, 8:00 AM -5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571)-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. C. K./  
Examiner, Art Unit 1725

/Basia Ridley/  
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